Workshop Proceedings

GROWTH MONITORING AS A PRIMARY HEALTH CARE ACTIVITY

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Exerpts From

GROWTH MONITORING - REALITY OR A DREAM

By

Prof. Indra Bhargava, M.B.,B.S.,M.S.,D.Sc.,F.A.M.S.,M.M.Sc.
Deputy Commissioner and Head MCH Division
Ministry of Health and Family Welfare
Government of India
New Delhi-110011-INDIA

Introduction

The main problems facing the child health programmes in a developing country can exist in relation to ensuring survival, freedom from infection and optimum growth. Therefore, activities in such a programme are directed towards tackling these problems namely basic MCH services for promoting survival of newborns and infants, immunization services for ensuring freedom from common infections. Optimum growth is usually a sequelae of these activities, when supplemented by appropriate nutritional measures.

Magnitude of the problem

India has a rather unusual situation with the health problems for a developing country, in having a reasonably well organized health infrastructure, supported by a large number of well trained medical and paramedical personnel of different categories but having a paucity of resources. This infrastructure has to provide services for a very large number of beneficiaries. An approximate estimate of the number of children in priority age group indicates 22 million children below 1 year and about 100 million children below 5 years.

Norms of growth

A definition of norm of growth of children, specific for the age and different regions of a vast country by itself, is a herculean task. These norms are influenced by biological, genetic, environmental, nutritional and socio-economic factors. In addition, previous health status and position of the child among siblings can also influence them. Such norms are primarily useful at the community level. For individual interventions, precise inferences can only be drawn from a scrutiny of the growth curve of the same individual. Therefore, interpreting information about growth in a biologically meaningful manner, so that one avoids sterile deserts of data collecting, happens to be the crux of the problem.

First three years of life are the most crucial and the most vulnerable ones of growth. These are marked by a rapid growth of brain, lymphoid tissue and subcutaneous fat. A study of growth of these tissues may lead to an effective monitoring of growth. Subcutenous fat starts growing at 34 weeks of prenatal life, and grows rapidly till 9 months after birth. Subsequently, it decreases till 6 to 8 years and then increases again. It is note worthy that the weight of a young child and skin fold thickness at different ages, do not show a normal distribution.

Our Experiences

1) Isolated Studies - During the last two decades a number of isolated studies have been undertaken by individual workers, mostly from medical colleges, on growth monitoring of young children. Both longitudinal and cross section studies have been done. These studies have been conducted as specific research projects and had the benefit of motivation and expertise of the workers, and have established the need and utility of monitoring of growth in young children.

2) I.C.D.S. - A novel project regarding Integrated Development of child on all the facets is in progress at a national level in selected areas. This is called Integrated Child Development Scheme acronym ICDS, and is implemented by the Ministry of Social Welfare, in close collaboration with the Ministry of Health and Family Welfare. The scheme has been in progress since 1978-79 and is being extended gradually. The present coverage is about 800 blocks, each with a population of 100,000. Each block is divided into 100 units, each covering a population of 1000. This unit is called Angarwadi and is provided with a female worker - called Angarwadi worker. This worker is trained to carry out activities for non-formal education, supplementary nutrition and growth monitoring. She is also responsible for augmenting acceptance of health services like immunization, antenatal care, medicinal supplements for nutrition and maintains a close liason with the health worker.

   Under this programme, coverage of children up to 6 years is approximately 2.5 to 3 million. This number is expected to reach 4 million by December 1984 and 5 million by March 1985. Though a formal evaluation has not been done, preliminary impressions are that the programme has been successful in detecting hidden malnutrition leading to appropriate interventions. It has also been observed that monitoring of growth by the Angarwadi workers has been a useful contact point for other health activities - preventive or curative. Though growth charts have a limited utility in severe degrees of malnutrition, yet it has been found that when severe degrees of malnutrition are improving, growth chart is an added motivation for continuance of treatment.

3) Study on immunization against Measles: over 5000 children of ages ranging from 9 to 23 months distributed over 34 medical colleges were immunised against measles. Growth of these chidren was monitored at regular intervals for 2 years. A similar number of controls were provided. The data has shown a highly significant association of immunization against measles and a better gain in weight. In children of 9 to 12 months, this association is established by 6 months, while in older children, it takes another year to develop.

Innovations

Increasing acceptance: results of a health activity depend upon augmenting 3A's - Availability, Accessibility and Acceptability.

Augmentation of acceptability depends on the quality of communication with the consumers. A good communication about acceptance of a new thing consists of a hierarchy of events, different levels of which are:

1) Creating awareness;
2) Arousal of interest;
3) Achieving an understanding of the process;
4) Perceiving the likelihood of its being useful to the person;
5) Critical appraisal;
6) Assessment of risk involved in acceptance;
7) Individual judgement regarding its utility;
8) Decision for a trial as such or by hearing from other users;
9) Implement acceptance.

Generally our communication efforts are intense up to level 3 of this hierarchy, with very little attention to the higher levels. As such the acceptance of the services is rather uncertain because so many steps in the communication nearer the final outcome are not being tackled. An attempt to make the quality of services of an exemplary nature will not only benefit the beneficiaries but will motivate them to act as advocates for acceptance and availing of these services by other prospective beneficiaries.

Appropriate Technology

1) Training of future doctors.

An overall supervision by a medical person for growth monitoring is essential. Therefore, an attempt must be made for preparing the doctor of tomorrow for assuming the leadership of the team for growth monitoring. Accordingly, an innovative project towards developing an integrated curriculum for human development, for medical students has been taken up in three leading medical colleges in India. The curriculum aims at giving an integrated knowledge of embryology, genetics and growth after birth till attainment of

maturity, and skills in common procedures like assesment of prenatal development timely detection of birth defects, preparation of pedigree charts, analysis of karyotypes and monitoring of growth. For monitoring of growth, small batches of preclinical students will be posted in pediatrics outpatients and will assess the growth of children. The children will be classified into three categories :

1) Growing within normal range, do not need an intervention. These will be dealt by the students.
2) Showing some deviations of growth, will be followed by teachers of Anatomy.
3) Showing marked deviations of growth and will be examined by Paediatricians.

The students will work under supervision of teachers of Anatomy.

2) A task oriented approach to training is the crux of the problem. It consists of defining the goal, specifying the purpose, identifying the target population and their needs. Following this, potential activities for meeting these needs are listed and the feasible ones selected. Tasks required for each feasible activity are listed out, and the ones possible within the constraints are selected. A valid question at this stage can be raised in relation to accepting an alternative to these tasks. Following this, the tasks are subjected to a matrix analysis in relation to each worker and its operational aspects, which include the frequency, timing, priority, expected outcome, resources needed, technical alternatives and the problems anticipated.

The tasks can be made operational, after consideration of the knowledge or skill required and the needs of materials, logistic support and the community involvement.

Cost Factors

Monitoring of growth with the present technology is a complex, time consuming and expensive proposition. The cost factors for different components of growth monitoring in India have been worked out by UNICEF (India). According to these estimates, the break up is as follows for a population unit of 100,000.

1) Weighing and screening of children 1-3 years at monthly and 3-5 years at quarterly intervals.

Cost in first year	$ 32,000
Cost in later 4 years ($32,000 x 4)	$128,000
	$160,000

$2.09 per beneficiary per year.

2) Selective supplementary nutrition for children below 3 years.

Cost in first year	$ 43,000
Cost in later 4 years ($18,000 x 4)	$ 72,000
	$115,000

This amounts to $32.54 per child screened and fed.

These activities are expected to avert 374 child deaths due to malnutrition.

Applying these estimates to the total coverage, the amount works out to a staggering figure of nearly 2000 million dollars over a period of five years. Therefore, a prime question arise: is an investment of this magnitude justified? Are there other alternatives?

Risk approach to growth monitoring

Above estimates, when viewed in the context of limited resources at his disposal, leads one to infer that the current technology for monitoring of growth aimed at universal coverage is inappropriate on account of being costly, complicated and often unacceptable to the masses. The need for a technology which is simpler and inexpensive is obvious.

Monitoring of growth may be restricted to children exposed to risk factors during pregnancy, neonatal period, infancy and childhood. The measure of risk may be regarded as an index for the needs, and the services should aim at providing something for all, but more for those in need, in proportion to their needs. This approach calls for an attitude of mind which sees estimates of risk as estimates of urgency of need for preventive, promotive and early curative care. It can be regarded as a new tool to improve effectiveness, efficiency and the decisions at different levels in determination of priorities for allotment of resources and their utilization. Risk factors can be regarded as factors having a significant association with an undesired outcome. Prediction of risk factors and the effects can be used as an efficient tool in this programme. At times, an outcome can also become a risk factor. In essence, risk approach involves decisions on priorities on target groups and unwanted outcomes, measure association between risk factors and the outcome and plan the appropriate intervention.

The essential activities in this approach are :

1) Measure the risk;
2) Evolve a mechanism for surveillance;
3) Make predictions regarding level of care required;
4) Provide anticipatory care and allot resources in line with level of care required;
5) Increase popular knowledge about risk factors;
6) Utilize risk data for planning and evaluation.

Under ideal conditions, a data base for risk factors is an essential pre-requisite. It can consist of:

1) Data for each unwanted outcome, classified according to risk factors;

2) Data for each group of unwanted outcome and a list of risk factors;
3) Data for - incidence and prevalence of each risk factors, and if possible relative risk predictive power, and the ease, accuracy and acceptability for each risk factor.

An innovative approach for establishing relationships between antenatal care, risk factors, rearing in infancy and health status on one hand and the outcome of growth in first three years on the other has been conceived. It aims at involving the medical students, so that modifications of their attitudes can bring a long term benefit. The project will be taken up in 50 of the 106 medical colleges. With an average of 100 students in each college, 50 pairs or dyads will be available. Each dyad will record 4 cases each of 5 risk factors. Thus, each college will have 200 cases of each risk factor and all told 10,000 cases of each risk factor over the country. Each of these cases will be subjected to a monitoring of growth in the antenatal period and for three years after birth. This will lead to a data base relating the risk factors to the outcome of growth in preschool children.

To sum up, the need for monitoring growth is appreciated very well. However, the present methodology is not only complex but costly too. In the Indian context of good infrastructure and huge manpower, various innovatives towards the search for an alternative requiring less resources is in progress.

APPENDIX : NUTRITION EDUCATION MESSAGES

A. Children of 0-3 months whose weight does not increase during one month.

Advice:

1) The child should be breastfed 3 to 5 times more often than usual every day.
   Note : The more frequently a baby is breastfed the more the mother's milk will be produced. Do not worry, mother's milk will not be "exhausted" if it is given often.

2) A breastfeeding mother should drink an extra 2 glasses of fresh water 3 times daily.
   Note : To increase the volume of mothers' milk, the mother shou drink more. Cooking water from small green pea or other beans or soup made from vegetables are also good for additional drinks.

3) In case there is a well-known herb (traditional medicine) known t be able to increase the flow of mothers' milk, suggest that it be used.
   Note : In order to improve the flow of mother's milk, the mothe herself should believe that she is able to breastfeed he baby. The use of jamu (herb) or other habits which have become a tradition in the area concerned will make a mother tranquil and she will be more confident that she able to nurse her baby well. This belief has a positive influence on the production of mothers' milk (ASI).

B. Children of 0-3 months whose weight does not increase two months in succession.

Repeat advice given the previous month. Make enquiries as to whether or not all advice given was carried out and if not, ask what the problems were. Then give the additional advice: The mother should eat 2 dishes food more than she usually eat per day.

Note : A nursing mother should eat for 2 persons; for herself and th baby she is nursing. For this reason, she has to eat more than usual. Food should consist of a staple food and side dishes. The other members of the family can be asked to help remind th mother that she should eat more and if necessary put aside pa of their food for mother.

C. Children 3-7 months whose weight does not increase during one month.

Advice: Give the child one medium size dish of porridge 3 times a day.

Note : Mothers' milk (ASI) is still important but the child also nee additional food. Porridge can be made of rice. Add mashed te or tahu to the porridge. If the child appears to have alread been given porridge 3 times every day, give it one more dish day.

D. Children of 3-7 months whose weight does not increase two months in succession.

Repeat advice given last month. Make inquiries as to whether or not all advice given was carried out and if not, ask what the problems were. Then give advice : Give the child porridge 5 times a day, each time one medium size dish of porridge.

Note: A child should eat more frequently than an adult. Make it a habit to give the child food first before nursing it. If powdered milk usually used, mix it with rice porridge. Do not use powdered milk to make bottled milk because bottled milk can caused the child to suffer from diarrhea. In the mean time, continue to give the child mothers' milk.

E. Children of 7-12 months whose weight does not increase during one month.

Advice: A part from porridge given 5 times a day (each time one medium size dish of porridge), also give the child rice twice a day with mashed side-dishes.

Note: Do not hesitate to give your child such food frequently. A child of this age needs a lot of food. However, due to its small stomach, food should be given frequently. In the meantime nursing should be continued. It is advisable that mothers' milk be given after food and not before. This is intended not to make the child feel satisfied during the meal.

F. Children of 7-12 months whose weight does not increase two month in succession.

Repeat advice given last month. Make enquiries as to whether or not all advice given was carried out and if not, what the problems were. Then give new advice: Apart from 5-6 dishes of food every day, a child should be given snacks.

Note: At this age a child tends to put anything into its mouth. Give the infant snack, something for it to hold, which at the same time constitute a very useful additional food. Fried tempe or sweet potato prepared by mother at home are cheap and healthy foods. Be sure not to make it a habit to give your infant unhealthy snacks such as krupuk, ice, candies, etc.

GROWTH MONITORING AS NUTRITION EDUCATION STRATEGY:
The Indonesian Experience

By

Directorate of Nutrition
Ministry of Health
Indonesia

GROWTH MONITORING AS NUTRITION EDUCATION STRATEGY
(The Indonesian Experience)

By

Directorate of Nutrition
Ministry Of Health
Indonesia

INTRODUCTION

Within the last decade, Indonesia has been using "child growth" in National Nutrition Intervention Programme (UPGK), especially to monitor the child health, rather than to evaluate the nutritional status. Growth monitoring,which is community based, has been a focal activity in the programme. Decision on which kinds of interventions should be done, are based on the growth monitoring results.

Although growth is considered to be the best indicator of overall nutrition status and it is also a practical tool to plan appropriate follow up activities, evaluation showed some weakness in the implementation of this programme. The weakness were not only in the technical aspects which were related to the quality of the activities done, but also in the managerial aspects as well. This situation of course, influenced the outcome of the programme.

STRATEGY OF UPGK PROGRAMME

Children especially the age group under five, traditionally receive almost of all their food at home. Most of malnourished children are caused by lack of knowledge. Therefore, it is necessary to give guidance and service to their family. To ensure the programme to be internalized at family and community level, key leaders should be involved in the planning stage, as well as in the implementation stage of the programme. The current UPGK (Usaha Perbaikan Gizi Keluarga) was conceptualized by these understandings of family and community potentials.

The programme consists of a package of activities done by the community and supported by the service of government agencies. The aim is to improve the nutritional status of children and other member of the family. In order for the objectives of the programme to be understandable, measurable and attainable by the community, a promotive operational indicator was chosen. A "good nutritional status" was translated to "normal weight gain". The weight chart become the prime communication tool, replacing its usual function as a clinical record of nutritional status.

G. Children of 12-24 months whose weight does not increase during one month.

Advice: Give the child adult food 5 times a day.

Note: This child is already big and needs food used by adults. The child, however, should eat more frequently than adults do. Be sure that such food consists of rice, side dishes (tahu, tempe, teri, fish) and vegetables. Side dishes cooked with santan (coconut milk) and fried side dishes are very good for children. Make sure that there is variety in the dishes served so that the child does not get bored. Nursing should be continued until the child is 2 years old.

H. Children of 12-24 months whose weight does not increase two months in succession.

Repeat advice given last month. Make inquiries as to whether or not all advice given was carried out and if not what the problems were. Than give new advice; Restore the appetite of the child by changing the kind of food offered.

Note: Suggest also that the mother gives food that the child likes. Sometimes by having a meal together with other children, the child will want to eat.

I. Children of 24 months and older whose weight does not increase during one month.

Advice: The child should eat half as much as his father eats.

Note: In order to be sure that the child gets this volume of food, put aside the child's portion in a separate dish. It is advisable that the father encourages his child to consume the entire portion put aside for him.

J. Children of 24 months and older whose weight does not increase two months in succession.

Repeat advice given last month. Make inquiries as to whether or not all advice was carried out and if not what the problems were. Then give new advice: Once a day a child should eat together with other children.

Note: By having a joint meal with other children, the child is encouraged to eat more. If this is done every day, the child will get used to eating more.

GROWTH MONITORING:
Basic Concept, Management and Operational Issues

by

Dr. Lukas Hendrata
Director
The Foundation for Indonesian Welfare
Yayasan Indonesia Sejahtera (YIS)

GROWTH MONITORING - SOME FIELD PROBLEMS

by

Dr. Daleep Mukarji
Christian Medical College Vellore
Tamil Nadu State, India

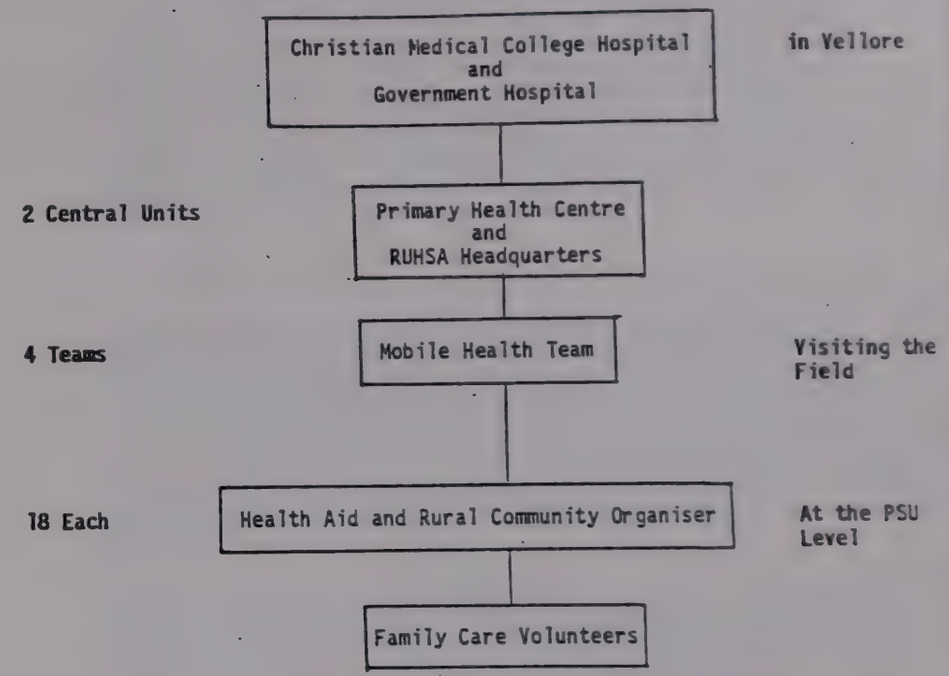
I INTRODUCTION

The Christian Medical College Vellore started in January 1977 as an integrat community health and rural development programme in the Block of K.V. Kuppa North Arcot District, Tamil Nadu, through its Rural Unit for Health and Soci Affairs (RUHSA). RUHSA developed a pattern of staffing, coverage and service appropriate to rural India in consultation with the Government of Tamil Nadu who gave RUHSA technical control of the primary health care in the block at Vaduganthangal. The Block was 100% rural with a literacy rate of 33% (male 53%, female 13%). About 70% of the total families and 75% of the total population live below the poverty line. There is no organised industry and is amongst the most backward blocks in this district of Tamil Nadu State.

RHUSA's referral health care delivery system is based in the community with the selection and training of a part-time community volunteer to be involved the promotion and maintenance of health. These are all ladies, married and about 87% illiterate with one for about 1000 population or 200 families. The are called Family Care Volunteers (FCVs).

RUHSA's field area was conveniently divided into 16 Peripheral Service Units (PSU's) with about 5,000 population per unit and with two central units, one the area around the Primary Health Centre (population about 10,000) and the other around RUHSA Headquarters (also about 10,000 population). Thus the 100,000 population of the Block has about 100 FCVs in 18 field units. Each unit has one lady Health Aid, literate and specially trained to support the FCVs, helping with records (including Growth Monitoring cards) and register and able to handle simple curative services. She is at the headquarters of PSU. She is assisted by a male Rural Community Organiser (RCO), a full time graduate employee of RUHSA who helps in various aspects of community development.

A mobile health team made up of a doctor, nurses and health inspector or visitor visits the PSU once a week on a regular basis. Problems that cannot handled in the field can be referred to the PHC or RUHSA's 50 bed health centre. Further referral is to CMC Hospital or to the Government Hospital (Vellore), both about 25 miles away. Thus RUHSA's referral system can be summarized as below:



III REVIEW OF GROWTH MONITORING

An analysis of 11,382 under-2 child care cards showed that during the first years of life 55.9% of children had attended the clinic less than 5 times, 34.3% between 5 and 10 times; and 9.8% more than 10 times. Only 51% had been weighed at least twice during the first two years. RUHSA expected at least visits in the first two years (3 in year one and 2 in year two). RUHSA found it difficult to weigh children regularly thus to individually monitor growth for all children. Mothers are reluctant to have their children weighed regularly and to come to the clinic for this purpose. A smaller study of mothers showed that 15% were able to explain the use of growth charts and they were literate mothers. The cards were mainly used by mothers (68.1%) when taking their children to the clinic for illness care and/or immunizati Growth charts were thus not useful to monitor the nutritional status of the children because of a high dropout or reluctance to have their children weighed.

Thus in spite of a commitment by the RUHSA programme to growth monitoring, the development of an appropriate infrastructure of services for the same emphasis on nutritional education and adequate growth, it has not been possible for RUHSA to show acceptance and utilization of this by the mother and the community. RUHSA has been forced to review the problems and the conceptual basis for the whole exercise. In a community based integrated Primary Health Care programme, is it necessary and feasible to weigh every child regularly? RUHSA has not been able to do this and yet there has been marked improvemement in the status of health in the community especially children.

IV PROBLEMS AND ISSUES IN GROWTH MONITORING (Regular Weighing)

After the evaluation of the programme, special studies to determine the perception and understanding of mothers to health careds and growth monitoring and discussions with community, field staff and colleagues at CMCH, RUHSA recognized certain problems in this commitment to regularly we every child in K.V. Kuppam Block.

a. Difficulty in training RUHSA's grassroot village level workers, the Family Care Volunteers, for this purpose.

RUHSA's Family Care Volunteers are people selected in the village by community and RUHSA to be specially trained in the promotion and maintenance of health. Thus, their primary role is educational and to be ag of change. Over 80% of them are illiterate and RUHSA's experience is

their capacity to understand, use and correctly record the weight of children in growth charts is low. They have understood concepts of nutrition and how to recognize and prevent malnutrition. They are capable of doing a mid-upper arm circumference measurement and interpreting that if properly trained and supervised. Therefore, RUHSA has developed the next level of workers, the Health Aid (who is literate, educated and specially trained for the job) in the use and maintenance of the growth chart. It was expected that mothers would bring their children to the clinic, motivated by the FCVs, to have them weighed. This has not been successful.

b. Use of Growth Charts as an educational tool in nutrition education.

In RUHSA's Special Nutrition Education Programme, various methods were used to educate the mothers, especially those from weaker sections, in the importance of nutrition. It was found that concepts such as diet, malnutrition, infant feeding, weaning practices, value of breast milk etc. could be taught to mothers, most of them illiterate, through various methods such as demonstrations, discussions, use of audio visual aids and games. Yet getting the mothers to understand these concepts through the use of growth charts was not very effective with illiterate learners. It was probably better on a one to one basis for individual learning and nutrition education.

Intensive individual and group nutrition education continues in RUHSA giving emphasis to avoiding harmful customs, better infant nutrition, feeding and weaning procedures and the improvement of overall child rearing practices. This can be done both at the home and the clinic without recourse to regular weighing of children. Doctors, nurses and other educated paramedical workers do understand the growth charts and the value of regular weighing. Yet they are not always available nor necessarily the best community educators.

c. Mothers' beliefs related to weighing.

Mothers and village level workers of RUHSA were interviewed in a study to find out the reasons why people in the community do not have their children weighed regularly. Many mothers actually refuse to have their children weighed, though otherwise were very cooperative and willing to take up new practices for the growth and development of their child.

There is in the community the concept of the "evil eye" where weighing a well child is detrimental to its health. This belief is very prevalent in the community, though attitudes are slowly changing and mothers who

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have gone through special education programmes (SNEP, Adult Education, etc.) are less likely to have this belief. Other mothers believe that weighing is only for sale of goods/produce such as rice, meat, vegeta etc. Mothers do not want to "sell their children". Thus, a certain pre dice in the community to weighing, especially healthy children, exists and needs to be adequately tackled.

e. Costs of Growth Monitoring

In order to have regular growth monitoring and good coverage of the community, RUHSA would have to select literate persons for the work of the FCVs. It may be difficult to find such persons who are adequately motivated and acceptable to the community. With better training and appropriate support and supervision, present FCVs could do this job ov time, but it would raise the direct and indirect costs. RUHSA would ne another 100 scales to give one for each FCV. In the Indian context eve village and village level worker (possibly over 5,000,000 of them) wou need one. The cost problem would be aggravated by the need to maintain and replace scales.

Over emphasis on weighing may force a part-time village health worker spend less time in the "real" inputs and necessary services which she can handle, i.e. health and nutritional education, preparation and utilization of oral rehydration therapy, motivation for immunization, family planning acceptance and participation in other socio economic schemes. An FCV spends about 4 hours per day in this work and has 200 families to care for; this activity of regularly weighing children may take up a considerable proportion of her time. The cost in time and resources would have to be measured against the usefullness of the pro cedure.

f. Effectiveness of Nutrition Education Programmes

Despite the inadequacy of regular weighing, overall nutrition in K.V.Kuppam block has improved from 1978 to 1982. Severe malnutrition h decreased from 26% to 7%. Of 2 to 4 year olds in K.V.Kamppam Block are wasted as opposed to 22% in a control block (P 0.02).

Further studies from the Midcourse Evaluation of RUHSA has looked at t weight and height of children from 0-60 months (n = 1,223). This prevalence of malnutrition is summarized in Table 2.

Table 2.

Prevalence (%) of malnutrition by age

Age (months)	Under Weight (Gomez II,III)	AC (-13.5 cm)	Stunted (-2SD)	Wasted (-2SD)	Both S+W
0 - 5	11.4	-	13.2	5.7	0
6 - 11	38.2	-	25.2	25.2	2.0
12 - 23	48.2	55.7	43.3	36.6	15.1
24 - 35	43.3	36.9	57.0	22.6	12.5
36 - 47	45.8	29.8	63.7	9.0	6.5
48 - 60	51.9	44.3	63.8	14.8	10.1
0 - 60 (N=1,223)	44.6	-	51.0	20.8	9.6

From the above Table we can note that :

1. 40-50% of RUHSA children in K.V.Kuppam Block are underweight (up to 75% of median weight for age = Gomez Class II and III) from 12-60 months.

2. It also shows the children who are stunted (-2SD below mean height for age = SHORT) and those wasted (-2SD below weight for height = THIN). There is a steady increase of stunting until 48-60 months when it reaches 60%. This pattern of stunting parallels the pattern of underweight. The wasting pattern is very different; it starts low, reaches 35% at 12-24 months and decreases to 10-15% later. This indicates an increase in thinness at the weaning period, but a recovery afterwards. In any event, the thinness does not correspond to the underweight pattern.

   From the above Table it may concluded that underweight (which is measured by the growth chart and in regular weighing, i.e. weight for age) is correlated in this population which shortness (height for age) and not thinness (weight for height).

3. Stunting and wasting together peaks in the 12-24 month weaning period at 15%. It is known that mortality for these children is much greater than for normal and thus these are high risk groups.

Thus, cross sectional community nutritional surveys may tell more about the nature of the local problem and its relation to age than faithful individual growth charting. This has policy implications. The time and nature of intervention can be adjusted to the problem. Comparing RUHSA data with heights and weights of children for Tamil Nadu (from sample measured by National Nutritional Monitoring Bureau of the National Institute of Nutrition, ICMR) shows, in general, RUHSA children are a centimeter or two taller and 500 grams heavier after the age of 2 years These differences in means are statistically significant at the p 0.01 level.

RUHSA's package of integrated services with emphasis on education and weaker sections may have contributed to the overall better health stat in K.V.Kuppam Block (compared to the control block and figures for Tam Nadu). It is also to be noted that there has been a drought in the are (1981/82) and yet there is some improvement in community nutritional health status. Also the recent midcourse evaluation data can be used baseline for further cross sectional evaluation studies in the future. has pointed to the nature, extent and situation of the problem and thu has policy and planning implications for RUHSA health care infrastruct for the next 5 years.

V. DISCUSSION

For years regular growth monitoring by weighing of children to detect early cases of malnutrition has been advocated as an essential part of public hea programmes. There have been experiences in India and elsewhere where this h been successful. Simple monitoring by arm circumference, easily done by les qualified field workers, though useful, has had limitations in a programme where detection of early malnutrition followed by supplement feeding for nutritional rehabilitation was important. Growth monitoring by regular weighing is a sensitive tool if the health care delivery system is geared identify children at risk with good follow up. Yet it requires skilled fie workers able to accurately weigh children, interpret the findings and iden the causes for weight loss or problems in growth. There workers and the in- frastructure need access to effective intervention easily available and at cost. They also need to be able to differentiate which high risk cases nee specific intervention so as to give the most benefit for that child.

It is now necessary to consider the conceptual basis and hence value in individual orientated growth monitoring at a center with a reasonably trai worker and adequate health care delivery system. The objective here was to identify individual children at risk and in need of specific intervention as to get the best results of limited resources. Yet in health services,

especially those of voluntary agencies and those in areas where literacy rates are higher, which may be more community based with a well designed Maternal and Child Health programme as an important component for Primary Health Care, emphasis on individual identification of malnutrition and intervention will shift to community nutritional monitoring with overall nutrition education. Appropriate target groups of more vulnerable populations can be identified by other more general socio-economic factors, baseline surveys and different procedures. The package of wide range educational and service activities can be specially designed to contribute to the improvement of health status and welfare of priority groups. The effectiveness of this approach can be periodically evaluated by cross sectional surveys and community nutritional monitoring. Ongoing monitoring of the health services to see who benefits and how can also be designed.

With a shift from "nutritional supplement" to "nutritional education", using village level workers in the community, working with mothers in their home, there is a need of a complementary shift from the "field clinic" to the community or homes. Here education for the promotion and maintenance of health with adequate emphasis on nutrition of the child in first 2 years of life will contribute to better health status. Thus, individual growth monitoring becomes less relevant and hence may be unnecessary in a comprehensive community primary health care programme.

VI. SUMMARY

This paper has presented some problems in the development of growth monitoring as part of an integrated community health programme. Growth monitoring of individuals with patient retained growth charts was not very successful in the programme because of the community attitude to weighing and the logistic problems in the health care delivery system. Yet there was significant changes in health status indicators during the period of service, even some improvement in nutritional status. This raised the question of necessity and appropriateness of growth monitoring through regular weighing of children. RUHSA continues to emphasis nutritional aspects in its overall health and development programme giving priority to the weaker sections. Monitoring of health services coverage, utilization and effectiveness continues and it is planned to periodically monitor the nutritional status of the community through a study of an appropriate sample using the standard anthropometric measurements. Thus, individual growth monitoring is now not an objective on a regular basis, still children who come to the base health center and the field units are weighed to help in the services rendered.

GROWTH MONITORING - THE BALLABGARH EXPERIENCE

by

Nath, L.M.[1], Kapoor, S.K.[2], and Chowdhury, S.[3]
Centre for Community Medicine,
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The Comprehensive Rural Health Services Project (CRHSP) Ballabgarh, came into being in 1966 as the rural outreach of the Center for Community Medicine of the All India Institute of Medical Sciences (AIIMS), New Delhi. It is situated 35 km from Delhi on the Delhi Agra Road and was set up with the objectives of training, research and service. CRHSP is actively involved in developing patterns of health care delivery, for instance, the concept of Primary Health Care delivered through multipurpose workers (male and female) was put into effect at CRHSP in 1972, five years before it became accepted as a national pattern.

The Center aims at demonstrating the complete chain of health services, extending from domiciliary care in both urban slums and rural areas to the most sophisticated specialist care at the AIIMS hospital. CRHSP has therefore Extension Centers (sub-centers) linked to Primary Health Centers, which in turn feed to a referral hospitals at the head-quarters of the project.

Initially child care services were offered by traditional paediatric clinics and a well-baby clinic at the referral hospital level or by general clinics at the PHC level. Domicilliary and Extension Centers offered conventional preventive services with the emphasis on immunization.

At the referral hospital, the well baby clinic was scheduled for one afternoon a week. The attendance at this clinic soon rose to over a hundred an afternoon, making meaningful counselling well nigh impossible. In an attempt to "decongest" the clinic it was changed to 3 times a week and then to a daily clinic, where both well and unwell children were examined. However, the attendance is still well over a hundred children every day.

Initially, growth was monitored by weighing the child and noting this on his clinic card on every visit. Cards were given free of cost and frequently got lost - the mother just stood in queue and got another card made. "Monitoring" in the sense of continuous and sequential measurement was found impossible. By charging a nominal fee for clinic cards, its loss was dramatically cut down and sequential records became a reality. These cards, however, could only be used by doctors and medical students who had per force memorized the "expected" weight gains at various ages. The doctors too seldom had the time to make the mental calculations required to estimate a child's progress.

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[1]Professor and Head, [2]Associate Professor and Officer Incharge of Rural Health Project, [3]Medical Anthropologist, Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi.

Dr. Morley's card dramatically changed the situation by merely plotting sequential readings on the card, the assessment could be made in a moment, s much so that the paramedic doing the weighing started being asked to separat out children who were not gaining weight or were markedly below the expected value.

The mother is an essential member of the health care team because as far as possible, she is the agent of active intervention. Through her involvement growth monitoring, in some instance, is an effective tool for initiating peoples participation.

Children covered by growth monitoring

The CRHSP-Ballabgarh, now only monitors the growth of children up to the age of three. This cut off point at 3 years has been fixed for several reasons:

a) 90% of the "under-fives" mortality is in this period.

b) This is the period of fastest growth, therefore, growth rate chang show up immediately in this age group.

c) With the average birth interval at 2.5 to 2.7 years; the chances o conception of the next child is highest at this time.

d) Malnutrition in this age group has serious and permanent long lasting consequences.

e) The weight gain expected in a month at this time, is such that the weighing scales can reliably detect it.

f) Once the child is able to walk and eat adult food, malnutrition is less often present.

Where resource constraints exist, we have no option but to attempt to concentrate our resources where they are needed most and where the greatest effect can be expected. Therefore, including children in the 4th and 5th yea of life throws an additional burden on the system with relatively little benefit to the community. In addition, it is often physically much more difficult to trace the under five who is walking and eating on his own, most often this child is relegated to the care of an older sibling and hence out the house.

Frequency of weighing

We have come to the conclusion that the ideal is to weigh every child every month - in the first and possibly second year of life. Since we only cover the first three years of life, we have stuck to a uniform policy of monthly weighing, even though a child more than two years old could perhaps be adequately monitored by being weighed slightly less frequently - say once every two months.

There does not seem to be any justification, in our experience, for weighing children between 3 and 5 more frequently than once a quarter. Besides other reasons, a normally growing child in the fifth year of life may gain only 100 gm or less a month, a difference too small to be reliably measured by most available scales used in field growth monitoring.

Monitoring growth during pregnancy

Conceptually the idea of monitoring intra-uterine growth appealed to us, however, we were unable to implement an effective programme in the field situation. Some degree of supervision is kept during routine antenatal check-ups even in the field but is limited to recording the size of the uterus and initiating special care if a marked disproportion is noted between chronological duration of pregnancy and height of the fundus.

Priorities for growth monitoring

The child who is not covered is, in our opinion the most important child from the "at risk" point of view. The progressive mothers, the families who are most susceptible to the health education programmes are the ones who come forward and take advantage of the health resources available. In any case, the children of these families are likely to be the healthiest. In contrast, the children of the neediest families, the most backward (socially and economically) are the ones who are in greatest need of care and it is exactly these children who do not come seeking care. Not only is apathy and social backwardness to blame but these mothers cannot afford to come to the health center because of the "hidden costs" of the so-called "free care". Most of these parents are daily wage laborers, hence if they do not report for work early morning to enrole themselves, they are deprived of that day's work, therefore, do not get paid. To avail of our "free care", they loose a days' wage, thus actually paying many times more than they would if they went to a private practitioner.

Often all of us have had the heart breaking experience of seeing a mother put the family buffalo before her child - reason, if the buffalo is not milked it may go dry - if the child dies it is all a matter of fate, moreover they can have another. If the buffalo goes dry the family starves. Harsh! yes, but true, the reality of their life nevertheless.

APPENDIX C

Reference Documents and Handouts

It is for these reasons, we are convinced that in our situation, at present, the only way to reach the priority child is to go from house to house and look for the child, because it is this child who needs us most and yet is the least likely to come to the weighing station or clinic.

In our programme, growth monitoring is done by paramedical workers both in the clinic and in the field. In the field multipurpose workers (MPW) both male and female, do the weighing. A compromise that has proven effective is to have a "weighing day" for a village, suitably publicised and then a house to house follow-up as a part of the MPWs programme.

We have not tried using volunteers either in the form of community health guides or the mothers, for the weighing programmes. The vast majority of mothers in the rural north India are illiterate and would not be able to record any information on the chart.

The "At Risk" Child

The child who is found to either have lost weight or who has not gained the expected weight is categorised as being "at risk". If he/she is detected at the clinic, the doctor sees the child immediately. If in the field, the mother is advised to attend the next weekly clinic in their village sub-center. Investigations as to the cause are carried out by paramedic (history of severe illness, diarrhoea, measles, etc.) and then the doctor. Generally the action taken subsequently is curative care of precipitating factors and intensive nutrition health education together with an increased frequency of health system/patient contact.

Whether the cause is primarily nutritional, or secondary to an illness which precipitated weight loss, if the child does not respond to intensive health education the mother/child are referred to a Nutritional Rehabilitation Clinic. Children who are suffering from 3rd degree malnutrition are also referred to this clinic. Supplements are not doled out in our programme.

The Nutrition Rehabilitation Clinic

This clinic is primarily for the mothers of grossly under weight children who have not responded to health education in the field or Child Welfare Clinic. Here the mothers bring surplus food items and prepare a nutrition supplement which they share. In addition, discussions are held regarding their beliefs, practices, problems and solutions of feeding problem children. We have found this to be an extremely effective therapeutic and promotional measure.

APPENDIX C

Reference Documents and Handouts

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8. UNICEF, New York "The Indonesian National Family Nutrition Improvement Programme: Analysis of Programme Experience." One of two case studies accompanying the policy review paper "Overview of evaluative activities in UNICEF" (E/ICEF/1984/L.3) 24 February 1984.

Back-Up Facilities

These experiences point out the paramount importance of having adequate back-up facilities for the growth monitoring, as indeed for all primary health care programme. The basic requirements are as follows:

- Treatment for sick children,
- Technical/professional back up by a doctor,
- Laboratory services,
- Logistic support,
- Supplies of drugs/immunising agents/bleaching powder/health cards/equipment etc.,
- Health education inputs,
- Assistance with record keeping and local and immediate utilization of data,
- Nutritional Rehabilitation Clinics with food supplies,
- Family planning services,
- Constant supervision.

The programme cannot, and must not operate in isolation. It must be an integral part of a comprehensive health care system.

Data Gathered

The data gathered by us are :

a) Statistics on coverage with special emphasis on non-cooperative and drop outs,

b) Collective charting of all the mothers weighings by a worker/sub-center on one chart,

c) Vital statistics for the area,

d) "At Risk" register/nutritional rehabilitation record,

e) Random supervisory follow-up to the house and cross checks with morbidity records.

Summary

In our experience, growth monitoring is a means to an end, a tool for providing better health care. It is not a research tool or primarily a recording system for the health provider and must never be allowed to become an end in itself.

It can be useful :

a) for following the normal growth pattern of a child, a child growing normally can be taken to be essentially healthy;

b) for early detection of growth failure to initiate corrective action;

c) for initiating health education and ensuring participation of the mother and thus of the community;

d) as a parent retained record of the childs' health care;

e) as a reminder to the parent and to the health provider regarding the advice and/or intervention due on immunization, family planning, nutrition, etc.

The results that have been achieved in the rural area where we work are a gret encouragement to us and support us in our conviction that a comprehensive primary health care system, with growth monitoring as one of its components, can achieve a reasonable level of health in the community. The following table list some representative parameters from a population of 50,000 where the figures for 1972 and 1982 are compared with the national average and the target for the year 2000. The conclusion are clear. Primary health care as a concept is valid and the goals set by the Government of India are realistic.

Table 1
CRHS Project, Ballabgarh

	IFPA		NATIONAL
	1972	1982	2000 A.D.
Population	40,703	51,539	-
Crude Birth Rate	13.4	7.6	9.0
Infant Mortality Rate	100.3	58.2	/60
Neonatal Mortality Rate	42.3	22.9	-
Maternal Mortality Rate	2.2	0.75	/2

U.S. Agency for International Development

Bureau for Asia

RECOMMENDATIONS FOR IMPROVED HPN PROGRAM IMPLEMENTATION WITHIN THE BUREAU FOR ASIA

Report Prepared at the Asia Bureau Health, Population and Nutrition Officers Conference

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Singapore

Jeffalyn Johnson & Associates, Inc.
5205 Leesburg Pike, Suite 907
Falls Church, VA 22041
(703) 578-4633

IV. Growth Monitoring

Recommendations

It is essential that AID HPN staff and host country counterparts:

1. Better understand the difference between growth monitoring (GM) and nutritional status assessment as follows:

Growth Monitoring	Nutritional Status Assessment
Dynamic	Static
Immediate situation	Cummulative over years
Frequent monitoring	Periodic measure
Early warning	Late results
Brief reaction/response	Long response needed
Small group activity	Large group
Active interaction with mother	Mother passsive
Mother is best measurer	Professional measurer best
Other PHC inputs indicated	Nutrition rehabilitation needed

2. Better understand the key elements of GM success as follows:

- Mother based - responsible and active
- Age of enrollment - less than 6 months
- Normal nutrition at enrollment - focus on promoting this. If rehabilitation is needed, send outside of GM program.
- Small group--20-25 mothers or less
- Action response to faltering-growth:
  - Home action - possible and realistic
  - Mother pairing - successful neighbor as teacher
  - Credible referral - health center takes some action

- Growth Chart Design and Use
  Mother retained, and as indestructible as possible
  Designed for mothers not nutritionists
  Individualized growth channel - expected trend
  (Avoid linear and nutri-status)
- Scales--easy to use, durable, new digital, solar powered
- Teaching of mothers should have phased introduction of messages and activities over months or years; mothers' understanding and competence should be tested prior to introducing new ideas/actions

3. Avoid the following program features which guarantee failure of GM programs (or any health, nutrition or population program):

   - Make mothers passive participants
   - Admit older children
   - Have large group (more than 30)
   - Emphasize group (not individual) results
   - Keep cards at the Health Center
   - Do not encourage mother-to-mother interaction
   - Have no back-up for kids who fail to grow
   - Have referrals greeted with refusal at Health Center
   - Have no other PHC services provided along with GM

While GM comprises an important individual health monitoring activity, it is, by itself (weighing) of no value. Thus, half measures are often not productive or even counter productive. GM can form the basis of village operated PHC activities leading to a sustained PHC program that provides useful data on the nutritional health of a population as well as for individualized health and nutrition cases.